

What is claimed is:

1. A directional antenna control device which forms a plurality of fixed beams based on signals received by a plurality of array antenna elements, detects power levels of the fixed beams, and selects a fixed beam in accordance with the detected power levels to generate a received signal based on the selected beam, the device comprising:

detecting means for detecting, per unit time period for beam switching, a power level of a fixed beam selected in the previous unit time period, power levels of m fixed beams (where m is a positive integer) adjacent to the fixed beam selected in the previous unit time period, and power levels of n fixed beams (where n is a positive integer) of the plurality of fixed beams except for the fixed beam selected in the previous unit time period and the m fixed beams; and

selecting means for selecting a fixed beam having the largest power in accordance with the power levels detected by said detecting means.

2. The directional antenna control device according to claim 1, wherein a combination of the n fixed beams is changed to another combination of the n fixed beams per unit time period for beam switching so that the power levels of all the plurality of fixed beams are measured within a predetermined time period.

3. A directional antenna control device which forms a plurality of fixed beams based on signals received by a

plurality of array antenna elements, detects SIRs
(Signal-to-Interference power Ratios) of the fixed beams, and
selects a fixed beam in accordance with the detected SIRs to
generate a received signal based on the selected beam, the
5 device comprising:

detecting means for detecting, per unit time period for
beam switching, an SIR of a fixed beam selected in the previous
unit time period, SIRs of m fixed beams (where m is a positive
integer) adjacent to the fixed beam selected in the previous
10 unit time period, and SIRs of n fixed beams (where n is a
positive integer) of the plurality of fixed beams except for
the fixed beam selected in the previous unit time period and
the m fixed beams; and

selecting means for selecting a fixed beam having the
15 largest SIR value in accordance with the SIRs detected by said
detecting means.

4. The directional antenna control device according to claim
3, wherein a combination of the n fixed beams is changed to
another combination of the n fixed beams per unit time period
20 for beam switching so that the SIRs of all the plurality of
fixed beams are measured within a predetermined time period.

5. A beam selecting method for a directional antenna control
device which forms a plurality of fixed beams based on signals
25 received by a plurality of array antenna elements, detects
power levels of the fixed beams, and selects a fixed beam in
accordance with the detected power levels to generate a

received signal based on the selected beam, the method comprising:

5 a detecting step of detecting, per unit time period for beam switching, a power level of a fixed beam selected in the previous unit time period, power levels of m fixed beams (where m is a positive integer) adjacent to the fixed beam selected in the previous unit time period, and power levels of n fixed beams (where n is a positive integer) of the plurality of fixed beams except for the fixed beam selected in the previous unit
10 time period and the m fixed beams; and

a selecting step of selecting a fixed beam having the largest power in accordance with the power levels detected in said detecting step.

6. The beam selecting method according to claim 5, wherein
15 a combination of the n fixed beams is changed to another combination of the n fixed beams per unit time period for beam switching so that the power levels of all the plurality of fixed beams are measured within a predetermined time period.

7. A beam selecting method for a directional antenna control
20 device which forms a plurality of fixed beams based on signals received by a plurality of array antenna elements, detects SIRs (Signal-to-Interference power Ratios) of the fixed beams, and selects a fixed beam in accordance with the detected SIRs to generate a received signal based on the selected beam, the
25 method comprising:

a detecting step of detecting, per unit time period for beam switching, an SIR of a fixed beam selected in the previous unit time period, SIRs of m fixed beams (where m is a positive integer) adjacent to the fixed beam selected in the previous
5 unit time period, and SIRs of n fixed beams (where n is a positive integer) of the plurality of fixed beams except for the fixed beam selected in the previous unit time period and the m fixed beams; and

a selecting step of selecting a fixed beam having the
10 largest SIR value in accordance with the SIRs detected in said detecting step.

8. The beam selecting method according to claim 7, wherein a combination of the n fixed beams is changed to another combination of the n fixed beams per unit time period for beam
15 switching so that the SIRs of all the plurality of fixed beams are measured within a predetermined time period.

9. A program for causing a computer to execute a beam selecting method for a directional antenna control device which forms a plurality of fixed beams based on signals
20 received by a plurality of array antenna elements, detects power levels of the fixed beams, and selects a fixed beam in accordance with the detected power levels to generate a received signal based on the selected beam, the program comprising:

25 a detecting step of detecting, per unit time period for beam switching, a power level of a fixed beam selected in the

previous unit time period, power levels of m fixed beams (where m is a positive integer) adjacent to the fixed beam selected in the previous unit time period, and power levels of n fixed beams (where n is a positive integer) of the plurality of fixed beams except for the fixed beam selected in the previous unit
5 time period and the m fixed beams; and

a selecting step of selecting a fixed beam having the largest power in accordance with the power levels detected in said detecting step.

10 10. A program for causing a computer to execute a beam selecting method for a directional antenna control device which forms a plurality of fixed beams based on signals received by a plurality of array antenna elements, detects SIRs (Signal-to-Interference power Ratios) of the fixed beams, and
15 selects a fixed beam in accordance with the detected SIRs to generate a received signal based on the selected beam, the program comprising:

a detecting step of detecting, per unit time period for beam switching, an SIR of a fixed beam selected in the previous
20 unit time period, SIRs of m fixed beams (where m is a positive integer) adjacent to the fixed beam selected in the previous unit time period, and SIRs of n fixed beams (where n is a positive integer) of the plurality of fixed beams except for the fixed beam selected in the previous unit time period and
25 the m fixed beams; and

a selecting step of selecting a fixed beam having the largest SIR value in accordance with the SIRs detected in said detecting step.